

**IN THE UNITED STATES COURT OF APPEALS  
FOR THE DISTRICT OF COLUMBIA CIRCUIT**

AURORA OPERATIONS, INC.,

Petitioner,

v.

UNITED STATES DEPARTMENT OF TRANSPORTATION; PETE BUTTIGIEG, in his official capacity as Secretary of Transportation; FEDERAL MOTOR CARRIER SAFETY ADMINISTRATION; VINCENT G. WHITE, in his official capacity as Deputy Administrator of the Federal Motor Carrier Safety Administration; and UNITED STATES OF AMERICA,

Respondents.

Case No. 25-1016

**PETITION FOR REVIEW**

Pursuant to Federal Rule of Appellate Procedure 15(a) and 28 U.S.C. §§ 2342(3)(A) and 2344, Aurora Operations, Inc. (“Aurora”) hereby petitions the Court for review of the attached December 26, 2024 final order by respondent Federal Motor Carrier Safety Administration (“FMCSA”) captioned *Parts and Accessories Necessary for Safe Operation; Application for an Exemption From Waymo LLC (USDOT #3000336) and Aurora Operations, Inc. (USDOT #3441156)*, Docket No. FMCSA-2023-

0071, and published in the Federal Register on December 27, 2024 at 89 Fed. Reg. 105675. Aurora respectfully requests that the Court hold unlawful and set aside the final order because it is arbitrary, capricious, an abuse of discretion and otherwise not in accordance with law. 5 U.S.C. § 706. Venue in this Court is proper under 28 U.S.C. § 2343.

On January 10, 2023, Aurora and another entity (the “Applicants”) applied for an exemption (the “Application”) from certain Federal Motor Carrier Safety Regulations (“FMCSRs”) requiring human drivers of commercial motor vehicles (“CMVs”) to exit the vehicle (regardless of roadway and traffic conditions) and place reflective triangles, fusees or liquid-burning flares on the roadway when stopped on the road or shoulder of a highway.<sup>1</sup> The requested exemption would allow driverless, autonomous CMVs to utilize cab-mounted warning beacons (“CMWBs”) instead of human-placed warning devices to alert road users when autonomous CMVs are stopped.

FMCSA’s authorizing statute provides for the grant of an exemption request “to a person or class of persons . . . if the Secretary finds such exemption would likely achieve a level of safety that is equivalent to, or

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<sup>1</sup> The Application was filed on behalf of the class of motor carriers operating autonomous CMVs, five of whom joined a “statement of support” for the Application, and was not limited to the Applicants.

greater than, the level that would be achieved absent such exemption.”

49 U.S.C. § 31315(b)(1).

Nearly two years after receiving the Application, without asking any additional clarifying questions as allowed under the law, and despite the Applicants’ submission of extensive research confirming the safety benefits and efficacy of CMWBs as compared to the otherwise-specified human-placed warning devices, FMCSA arbitrarily and capriciously denied the Application contrary to record evidence and without adequate, reasoned explanation. FMCSA’s decision stifles safety innovation and would impede the development of the autonomous trucking industry for no valid or lawful reason.

The record before FMCSA demonstrates that CMWBs would achieve a level of safety at least equivalent to the level of safety absent the exemption. The Application was supported by two separate studies, conducted by the Virginia Tech Transportation Institute and Aurora, reflecting the responses of several thousand road users across a variety of lighting conditions and interstate roadway geometries. Both studies demonstrated that CMWBs are equally or more effective in enabling road users to detect, recognize and react to the hazard presented by a CMV parked on a roadway as compared to human-placed warning devices, causing such

road users to slow down and/or change lanes in response. FMCSA’s decision does not adequately explain, with nonarbitrary reasons, why the exemption request was denied given this robust record evidence.

The arbitrariness of FMCSA’s December 26 decision as to “equivalency” is rendered all the more glaring because when the applicable regulations were promulgated over 50 years ago, no actual safety data was presented to support the safety benefit of the specified human-placed warning devices. 49 C.F.R. § 392.22; 37 Fed. Reg. 17175 (Aug. 21, 1972). In assessing whether CMWBs are at least “equivalent” to the driver-placed warnings, the actual data provided by the Applicants far exceeds what FMCSA has admitted about the agency’s existing requirements: FMCSA has “never conducted experimental research on the impact of using” the currently-mandated human-placed warning devices, and it is “historically unresolved” whether “the use of such [driver-placed] devices improves traffic safety and, if so, how and to what extent”. 90 Fed. Reg. 1591, 1592 (Jan. 8, 2025). More than 50 years after the introduction of those regulations, there have been limited authorized advancements in warning device technology, including to address the delay—and danger—required by forcing a driver to exit a disabled vehicle and place such devices on the roadway. Under current regulations, when a CMV is stopped on a highway, the driver

must, within 10 minutes, exit the truck, walk onto a roadway that may have traffic and other conditions, and place the required warning devices in three locations around the CMV, exposing the driver to the significant dangers presented by roadway traffic.

By preventing use of a newer technology on autonomous CMVs that will make America's roads safer—and despite empirical data showing the safety benefits of CMWBs—FMCSA's decision is also contrary to its stated commitment to “adapting as technology changes and supporting technologies that further [its] policy goals”. 89 Fed. Reg. 105675, 105675 (Dec. 27, 2024).

The December 26 denial of the requested exemption is at odds with the law and with FMCSA's own public commitment to support safety innovation, and it inhibits the further development of vital self-driving technologies in a manner contrary to the standards of section 706 of the Administrative Procedure Act. In the absence of correction by the agency itself, this denial requires review and correction by this Court.

*(Signature on following page)*

Respectfully Submitted,

CRAVATH, SWAINE & MOORE LLP,

by

/s/ Jeffrey A. Rosen

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*Counsel for Petitioner*

**CORPORATE DISCLOSURE STATEMENT**

Pursuant to Federal Rule of Appellate Procedure 26.1 and Circuit

Rule 26.1, Aurora Operations, Inc. states as follows:

Aurora Operations, Inc. is a self-driving technology company and a wholly-owned subsidiary of Aurora Innovation, Inc., a publicly-held company. Neben Holdings, LLC—a wholly-owned indirect subsidiary of Uber Technologies, Inc., a publicly-held company—has a 10% or greater interest in the Class A Common Stock of Aurora Innovation, Inc. Entities affiliated with T. Rowe Price Investment Management, Inc. and T. Rowe Price Associates, Inc.—both of which are wholly-owned subsidiaries of T. Rowe Price Group, Inc., a publicly-held company—collectively have a 10% or greater interest in the Class A Common Stock of Aurora Innovation, Inc.

*(Signature on following page)*

Respectfully Submitted,

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**CERTIFICATE OF SERVICE**

I, Jeffrey A. Rosen, hereby certify that on this 10th day of January, 2025, I caused a true and accurate copy of the foregoing Petition for Review and Corporate Disclosure Statement to be served by United States first-class mail, postage prepaid, upon the following:

Subash Iyer, Acting General Counsel  
U.S. Department of Transportation  
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Pete Buttigieg, Secretary  
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Melody Drummond Hansen, Chief Counsel  
Federal Motor Carrier Safety Administration  
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Vincent G. White, Deputy Administrator  
Federal Motor Carrier Safety Administration  
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Merrick B. Garland, Attorney General  
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Respectfully Submitted,

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# Exhibit A

**FOR FURTHER INFORMATION CONTACT:**

Reed Liriano, Program Coordinator, Office of the Legal Adviser, U.S. Department of State (telephone: 202-632-6471; email: [section2459@state.gov](mailto:section2459@state.gov)). The mailing address is U.S. Department of State, L/PD, 2200 C Street NW (SA-5), Suite 5H03, Washington, DC 20522-0505.

**SUPPLEMENTARY INFORMATION:** The foregoing determinations were made pursuant to the authority vested in me by the Act of October 19, 1965 (79 Stat. 985; 22 U.S.C. 2459), Executive Order 12047 of March 27, 1978, the Foreign Affairs Reform and Restructuring Act of 1998 (112 Stat. 2681, *et seq.*; 22 U.S.C. 6501 note, *et seq.*), Delegation of Authority No. 234 of October 1, 1999, Delegation of Authority No. 236–3 of August 28, 2000, and Delegation of Authority No. 523 of December 22, 2021.

**Nicole L. Elkorn,**

*Deputy Assistant Secretary for Professional and Cultural Exchanges, Bureau of Educational and Cultural Affairs, Department of State.*

[FR Doc. 2024-30946 Filed 12-26-24; 8:45 am]

**BILLING CODE 4710-05-P**

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## DEPARTMENT OF TRANSPORTATION

### Federal Motor Carrier Safety Administration

[Docket No. FMCSA-2023-0071]

### Parts and Accessories Necessary for Safe Operation; Application for an Exemption From Waymo LLC (USDOT #3000336) and Aurora Operations, Inc. (USDOT #3441156)

**AGENCY:** Federal Motor Carrier Safety Administration (FMCSA), Department of Transportation (DOT).

**ACTION:** Notice of final disposition; denial of exemption.

**SUMMARY:** The Federal Motor Carrier Safety Administration (FMCSA or the Agency) publishes its decision to deny an application from Waymo LLC (Waymo, USDOT #3000336) and Aurora Operations, Inc. (Aurora, USDOT #3441156) (together, Applicants), requesting an exemption from certain Federal Motor Carrier Safety Regulations (FMCSRs) related to requirements to place specific types of warning devices at prescribed locations around commercial motor vehicles (CMVs) stopped on the traveled portion or shoulder of a highway for any cause other than necessary traffic stops and requirements that lamps on CMVs be steady burning. Applicants requested

that they and “other similarly situated companies” be permitted to instead use “Cab-Mounted Warning Beacons” (including “variants” and “any configuration of similar effectiveness”) when the CMV is operated by a Level 4 Automated Driving System (ADS) either without a human on board or with a human on board when testing the warning beacons. Safety is FMCSA’s highest priority. The Agency embraces USDOT’s Innovation Principles, including adapting as technology changes and supporting technologies that further our policy goals. While the application and the public comments show promise for alternative warning devices to provide safety benefits for warning motorists of a stopped CMV under certain conditions, the present application does not demonstrate how Applicants or other proposed exempted parties would ensure an equivalent or greater level of safety than would be achieved absent the exemption. The application does not provide sufficient details about proposed alternative devices, and the limited data presented does not support a likely equivalent level of safety for a national, industry-wide exemption for all companies operating autonomous CMVs. If Applicants can reasonably address the reasons for the denial, Applicants may resubmit an exemption application.

**FOR FURTHER INFORMATION CONTACT:** Mr. David Sutula, Vehicle and Roadside Operations Division, Office of Carrier, Driver, and Vehicle Safety, FMCSA; 1200 New Jersey Avenue SE, Washington, DC 20590-0001; (202) 366-9209; [MCPSV@dot.gov](mailto:MCPSV@dot.gov).

**SUPPLEMENTARY INFORMATION:**

#### I. Viewing Comments and Documents

To view comments, go to [www.regulations.gov](http://www.regulations.gov), insert the docket number “FMCSA-2023-0071” in the keyword box, and click “Search.” Next, sort the results by “Posted (Newer-Older),” choose the first notice listed, click “Browse Comments.”

To view documents mentioned in this notice as being available in the docket, go to [www.regulations.gov](http://www.regulations.gov), insert the docket number “FMCSA-2023-0071” in the keyword box, click “Search,” and choose the document to review.

If you do not have access to the internet, you may view the docket online by visiting Dockets Operations on the ground floor of the DOT West Building, 1200 New Jersey Avenue SE, Washington, DC 20590, between 9 a.m. and 5 p.m. ET, Monday through Friday, except Federal holidays. To be sure someone is there to help you, please call

(202) 366-9317 or (202) 366-9826 before visiting Dockets Operations.

#### II. Legal Basis

FMCSA has authority to grant exemptions from FMCSRs where the Agency finds that “such exemption would likely achieve a level of safety that is equivalent to, or greater than, the level that would be achieved absent such exemption.” 49 U.S.C. 31136(e); 49 U.S.C. 31315(b)(1).

An exemption application must provide specific information relevant to the scope of the exemption sought including, but not limited to, the provisions from which the person requests exemption, the reason the exemption is needed, the time period during which the requested exemption would apply, an analysis of the safety impacts the requested exemption may cause, and the specific countermeasures the person would undertake to ensure an equivalent or greater measure of safety than would be achieved absent the requested exemption. 49 U.S.C. 31315(b)(5); 49 CFR 381.310.

Upon receipt of an exemption request, FMCSA must publish a notice of the request in the **Federal Register** and provide the public an opportunity to inspect the applicant’s safety analysis and any other relevant information known to the Agency, and to comment on the request. See 49 U.S.C. 31315(b)(6)(A); 49 CFR 381.315(a). The Agency reviews the application and any public comments submitted and determines whether to grant or deny the request. 49 CFR 381.315(b). The Agency must publish its decision in the **Federal Register**. Id. If the request is granted, the decision will identify the name of the person or class of persons granted the exemption, the provisions from which the person is exempt, the effective period, and the terms and conditions of the exemption. 49 U.S.C. 31315(b)(6)(B); 49 CFR 381.315(c)(1). If the request is denied, the Agency will publish the name of the person denied the exemption and the reasons for such denial. 49 U.S.C. 31315(b)(6)(C); 49 CFR 381.315(c)(2). A granted exemption may be renewed, upon request, for subsequent 5-year periods. 49 U.S.C. 31315(b)(2); 49 CFR 381.300(b). If an exemption request is denied, and the applicant can reasonably address the reason for the denial, the Agency may allow the applicant to resubmit the application. 49 U.S.C. 31315(b)(3); 49 CFR 381.317.

### III. Background

#### A. Current Regulatory Requirements Under the FMCSRs

Applicants request an exemption from certain FMCSRs related to requirements for placing warning devices around a stopped CMV, requirements that exterior lamps be steady burning, and requirements that specific types of warning devices be used.

The applicable FMCSRs require the driver of a CMV stopped on the traveled portion or the shoulder of a road for any cause other than a necessary traffic stop to activate hazard warning signal flashers and place required warning devices as soon as possible but within ten minutes, at specified locations behind and in front of the stopped CMV. 49 CFR 392.22(b). They also specify placement of warning devices in certain circumstances, such as during daylight hours, or where devices may be obstructed from view (e.g., when stopped within 500 feet of a curve or the crest of a hill). Id.

The FMCSRs also require that all exterior lamps be steady burning, with exceptions not relevant here. 49 CFR 393.25(e).

Finally, the FMCSRs specify the types and number of warning devices to be used for stopped vehicles, namely 3 bidirectional emergency reflective triangles, or at least 6 fusees or 3 liquid-burning flares. Other warning devices may be used in addition to required devices, as long as they do not reduce the effectiveness of required devices. 49 CFR 393.95(f).

#### B. Applicants' Requested Exemption

Applicants request an exemption on behalf of themselves and "similarly situated companies" from requirements of 49 CFR 392.22(b), 393.25(e), and 393.95(f). Application (App.) at 1. They request that CMVs operated by a Level 4 ADS be permitted to use "Cab-Mounted Warning Beacons" instead of FMCSR-specified warning devices when the vehicles are operating either without a human on board, or with a human on board when testing the warning beacons. Id.

Applicants define Cab-Mounted Warning Beacons as "cab-mounted warning devices, consisting of both forward- and rearward-facing amber flashing lights mounted at a height above the upper edge of the sideview mirrors." App. at 2. The proposed warning beacons are amber colored and meet certain Society of Automotive Engineers (SAE) requirements. Id. at 7–8. These warning beacons would "flash at a different rate than the required hazard warning signal flashers to

increase conspicuity of the stopped CMV," which Applicants contend would not interfere with or impair the effectiveness of hazard warning signal flashers. Id. at 11. Applicants propose that at least one rearward-facing light be mounted on each side of the cab "at some point on or above the upper edge of the sideview mirrors and below the top edge of the cab," and that at least one forward-facing light be mounted "similarly high" on the front of the cab. Id. at 9–10. Applicants provide a diagram illustrating areas where the beacons "could be mounted," noting that the description "purposely allows for flexibility with regard to the mounting location of the beacons so long as the beacons are positioned at a sufficiently high point on the cab." Id. at 10 n.19. Applicants propose that "[t]he exemption, if granted, should permit any configuration of similar effectiveness." Id. at 10.

Applicants state that the exemption is needed because compliance with 49 CFR 392.22(b) is "not feasible for autonomous CMVs without a human on board," and because proposed Cab-Mounted Warning Beacons are not steady burning (as required under 49 CFR 393.25(e)) and are not among the approved warning devices under 49 CFR 393.95(f). Applicants posit that if the exemption is not granted, the deployment of autonomous CMVs without a human driver on board will be "sufficiently impeded," and that alternatives to the exemption would be unnecessarily costly. App. at 14–15.

#### C. Research Submitted by Applicants in Support of Proposed Beacons

To support the asserted equivalent level of safety of Cab-Mounted Warning Beacons, Applicants submitted two reports on testing certain beacon "variants." App. at 9. Waymo sponsored a study by the Virginia Tech Transportation Institute (VTTI) ("Stopped Automated Commercial Motor Vehicle Warning Device Surrogates," prepared for Waymo, LLC, by Erin Mabry, Susan Soccolich, Kary Meissner, Josh Radlbeck, and Andy Schaudt, VTTI, August 1, 2022 (the Waymo study)). Aurora conducted what it calls a "naturalistic study" ("Naturalistic Study for Warning Device Equivalency," prepared by Aurora Operations, Inc., October 2022 (the Aurora study)). Id. at 11, apps. B–C.

The Waymo study evaluated whether drivers detected, recognized, and responded appropriately to certain beacons while traveling on a closed-circuit test track in daylight and nighttime conditions and encountering a stopped CMV at three different

locations (on the shoulder, in the lane ahead, and on the right shoulder after a curve). App. at 12. The study compared driver reactions to Cab-Mounted Warning Beacons with driver reactions to warning triangles and concluded that study participants subjectively preferred beacons over triangles for communicating the presence of a stopped CMV. Waymo study at 20. The study was conducted in Virginia with 48 participants (24 daylight, 24 nighttime). Id. at 7–8. The report does not describe the weather conditions.

The Aurora study observed the reactions of over 7,000 passing vehicles to the presence of certain beacons versus warning triangles. App. at 13. The study was conducted on public roads with passing motorists who were unaware of the study and traveling at highway speeds when they encountered a stopped CMV on the right shoulder. Id., Aurora study at 3. Aurora used sensors mounted on the stopped CMV to collect data about motorist responses. Aurora study at 8. Aurora reports that similar proportions of motorists responded to the presence of beacons as they did to warning triangles, and that among those responding, responses occurred at similar distances and motorists increased lateral separation in similar proportions. App. at 13–14. The Aurora study was conducted in Texas on Interstate 45 between Exits 258 and 249. Aurora study at 5. The report does not describe the weather conditions.

Applicants posit that the two reports confirm that the proposed beacons achieve a level of safety equivalent to or greater than the level achieved with FMCSR-specified warning triangles placed at prescribed distances. App. at 14.

### IV. Overview of Public Notice and Comments

FMCSA published in the **Federal Register** on March 9, 2023, notice of the exemption application and the opportunity for public comment. 88 FR 14665. In response, the Agency received 51 public comments.<sup>1</sup>

Twenty-five comments generally supported granting the application, including comments submitted by the Association for Uncrewed Vehicle Systems International (AUVSI); the American Trucking Associations (ATA);

<sup>1</sup> FMCSA considered all comments in the docket received through October 31, 2024. FMCSA notes that it received two comments from the Association for Uncrewed Vehicle Systems International but is treating those submissions as one comment because they are substantively identical. See <https://www.regulations.gov/comment/FMCSA-2023-0071-0020> and <https://www.regulations.gov/comment/FMCSA-2023-0071-0037>.

the Autonomous Vehicle Industry Association (AVIA); the Consumer Technology Association (CTA); Continental Automotive Systems, Inc.; Daimler Trucks of North America (Daimler); Hirschbach Motor Lines, Inc. (Hirschbach); Kodiak Robotics (Kodiak); the Motor and Equipment Manufacturers Association (MEMA); PACCAR Inc.; Stack AV Co. (Stack); TechNet; Uber Freight US, LLC (Uber Freight); the U.S. Chamber of Commerce; Volvo Autonomous Solutions NA, Inc. (VAS); Waabi Innovation US, Inc. (Waabi); Werner Enterprises (Werner); CWK Consulting, LLC; the Texas Trucking Association (TXTA); the Institute for Safer Trucking (IST); Isuzu Motors Limited, Isuzu Technical Center of America, Inc. (Isuzu); the Montana Trucking Association (MTA); the Allegheny Conference on Community Development (Allegheny Conference); the National Fraternal Order of Police (NFOP); and an individual commenter.

One commenter, HAAS Alert, was neutral on the proposal, although it supported updating current standards for hazard warnings and notifications.

Twenty-five comments generally expressed concerns with granting the exemption, including comments submitted by the Amalgamated Transit Union, AFL-CIO (ATU); AWM Associates, LLC; the Motor Vehicle Lighting Supplier Safety Institute (MVLSSI); the Owner Operator Independent Drivers Association (OOIDA); the Towing and Recovery Association of America, Inc. (TRA); the Transportation Trades Department, AFL-CIO (TTD); the Transport Workers Union of America, AFL-CIO (TWU); the Truck Safety Coalition (TSC)/Citizens for Reliable and Safe Highways (CRASH)/Parents Against Tired Truckers (PATT) (joint comment); eleven individual commenters; and six anonymous commenters.

Generally, commenters supporting the exemption cited the need for a warning system that does not require human intervention to place warning devices for ADS-operated CMVs and the need for continued development of automated technologies. AVIA, for example, argued that the exemption application proposes a new safety solution that would avoid the need for human intervention when a Level 4 or 5 ADS-equipped CMV is stopped on the highway. This position was echoed by comments from ATA; AUVSI; CTA; CWK Consulting, LLC; Daimler; Hirschbach; Kodiak; PACCAR Inc.; Stack; TechNet; Uber Freight; the U.S. Chamber of Commerce; VAS; Waabi; and Werner. These commenters stated

that the exemption would help address regulatory burdens that they believe are hindering the deployment of ADS-equipped CMVs. AVIA also commented that it believes the proposed beacons not only address needs of ADS-equipped vehicles but also could enhance safety if applied to traditional CMVs by reducing risks to drivers who would otherwise be required to exit their vehicles to place warning devices. IST expressed concern over the “significant risk” to truck drivers placing warning triangles (particularly in conditions of poor visibility or adverse weather). Waabi also emphasized that it is “extremely dangerous” to require human drivers to “get out of a CMV, walk into or next to oncoming traffic (including at night and during severe weather events), and proceed 100 feet beyond the vehicle, and then physically deploy a warning triangle or flare.” ATA and Kodiak commented that the exemption would be a positive step toward improving overall roadway safety. Similar comments from TXTA, Isuzu, MTA, IST, and Allegheny Conference noted that this would be a step toward enhancing or improving “roadway safety” for “autonomous trucks and other road users.” NFOP stated that granting the exemption would be “a step toward collecting data that can support a broader rulemaking effort to update FMCSA’s current regulation on warning devices for all CMVs.”

Commenters generally opposed to granting the exemption cited concerns about the effectiveness of the proposed beacons and the lack of evidence in Applicants’ studies to address certain safety concerns. ATU, for example, commented that there was no data demonstrating how the beacons would perform where there are blind corners blocking the sight lines of oncoming vehicles, where a vehicle is turned on its side, or if there is a fire or electrical problems. Other efficacy concerns included visibility of the beacons due to a single location, or based on roadway topography or alignment of the truck tractor and trailer; electrical failure causing failure of the beacons; and desensitization of the public to flashing beacons or confusion about what beacons mean (ATU, OOIDA, four individual commenters, one anonymous commenter, MVLSSI, and TRA). MVLSSI, OOIDA, TSC/CRASH/PATT, and trade unions (TWU, ATU, and TTD) also commented that Applicants presented insufficient evidence to demonstrate an equivalent level of safety, noting that more testing would be needed, with TSC/CRASH/PATT

emphasizing the lack of performance standards for ADS-equipped CMVs.<sup>2</sup>

Two individuals commented that the exemption, if granted, should apply to all CMVs, not just ADS-equipped CMVs. TWU and others called for FMCSA or DOT to consider larger studies on alternative warning devices to potentially update existing standards rather than granting an exemption from the current safety standards, and TTD similarly noted that the Applicants’ request would have been more appropriate as a petition for rulemaking. Some commenters believed that the exemption request was too broad, seeking an exemption that would apply to an entire class of CMVs, rather than limited to those CMVs under the control of the applicants (see, e.g., ATU, TWU, and TSC/CRASH/PATT), with some noting that many of these operators currently use different systems and processes. Commenters also noted that the cited testing does not account for the safety case for a broader spectrum of autonomous and non-autonomous CMVs operated by different entities.

Applicants submitted a 2.5-page response to public comments, dated April 19, 2023 (Applicant’s Response). They responded to certain commenter concerns regarding curves and hills by stating that the Waymo and Aurora studies evaluated beacons on or after curves, and that Aurora’s study assessed beacons beyond the crest of a hill. They argue that warning beacons’ positioning high on the cab made them effective. Regarding commenters’ concerns about electrical failure, Applicants responded that beacons “can and should be designed and installed to avoid a single-point power failure” (such as by establishing two power domains to draw from, although they encouraged FMCSA to remain technology neutral as to how they are designed). They also noted that existing warning devices are not immune from failure. They further contended that the proposed beacons would activate immediately and thereby provide an immediate warning, unlike specified warning devices, which may take up to ten minutes to be placed. Applicants did not submit additional evidence to support these positions.

## V. Exemption Decision

Safety is the Agency’s highest priority. The Agency embraces the United States Department of Transportation’s Innovation Principles,

<sup>2</sup> Among other FMCSA efforts to promote the safe testing and deployment of ADS-equipped CMVs, a proposed rulemaking, “Motor Carrier Operation of Automated Driving Systems (ADS)-Equipped Commercial Motor Vehicles” (RIN 2126-AC17), is currently underway.

including adapting as technology changes and supporting technologies that further our policy goals. Having carefully evaluated Applicants' exemption application, supporting documentation, the public comments, and the safety implications of Applicants' request, the Agency denies the application. While the application and public comments suggest promise for alternative warning devices in some circumstances—and the Agency encourages continued innovation and analyses in this area—given the scope of the exemption sought, including the proposed flexible standard for Cab-Mounted Warning Beacons and the proposed national and industry-wide exemption for all companies operating autonomous CMVs, FMCSA finds that the application does not demonstrate that granting the exemption will likely achieve a level of safety that is equivalent to, or greater than, the level of safety that would be achieved absent the exemption. As discussed below, the broad exemption is not supported by the data presented and lacks necessary monitoring controls to ensure highway safety. FMCSA notes that this decision does not preclude Applicants or others from seeking an exemption to use better defined warning beacons for specified companies in particular locations, as one of the bases of the Agency's decision here is the broad reach of Applicants' request.

*A. Applicants Do Not Provide Sufficient Details About the Proposed Alternative Devices and Do Not Demonstrate an Equivalent or Greater Level of Safety for Those Devices, Particularly for a Nationwide and Industry-Wide Exemption*

To obtain an exemption from the FMCSRs, an applicant must provide evidence allowing the Agency to conclude that the exemption would "likely achieve a level of safety that is equivalent to, or greater than, the level that would be achieved absent such exemption." 49 U.S.C. 31315(b)(1). An applicant likewise must include sufficient details about the specific countermeasures they would take to ensure an equivalent or greater measure of safety. 49 U.S.C. 31315(b)(5); 49 CFR 381.310(c)(5). The present application fails to do so.

*1. Applicants Do Not Provide Sufficient Details About the Proposed Alternative Warning Devices*

Applicants propose Cab-Mounted Warning Beacons consisting of "at least one" rearward-facing light mounted "at some point on or above the upper edge of the sideview mirrors" and "at least

one" forward-facing light. App. at 9–10. Applicants provide a diagram of where beacons "could be mounted," proposing that the description "purposely allows for flexibility with regard to the mounting location." Id. at 10 n.19. Applicants further propose that the exemption should "permit any configuration of similar effectiveness." Id. at 10. As several commenters noted, the proposed devices are not specific enough to ensure an equivalent level of safety. The variability of the description also does not readily enable the Agency to monitor the exemption terms and conditions. See 49 U.S.C. 31315(b)(8).

*2. Applicants Do Not Demonstrate an Equivalent Level of Safety Supporting the Full Scope of the Exemption Sought*

Applicants' submitted studies do not support an equivalent level of safety for Cab-Mounted Warning Beacons for the full scope of the exemption sought.

First, the studies at best address beacons mounted at 110 inches from the ground (Waymo study at 6) and at an undetermined height (Aurora study),<sup>3</sup> and with the particular placement and operational constraints described in the studies. They do not address the visibility of beacons for the full range of the "flexible" standard that Applicants propose, or "any configuration of similar effectiveness."

Second, while Applicants contend that both studies demonstrated similar overall reactions from highway users driving by a stopped CMV for the proposed Cab-Mounted Warning Beacons compared to warning triangles, the studies provided insufficient data to demonstrate an equivalency in driver responses. For example, as the Waymo study acknowledged, unfamiliarity of the warning beacons may have contributed to motorist behavior. Waymo study at 20. And while Applicants rely on the study to demonstrate that warning beacons were "easier to see" or "preferred" by drivers, the study also showed that for respondents who answered which device was better for signaling a stopped truck, 8 out of 10 selected warning triangles over beacons. Waymo study at 55. Aurora's study notes that some motorist responses may have occurred wholly outside the sensor range (Aurora study at 8)—an indication that the study may not have captured enough data points to compare whether drivers responded earlier to one warning device over the other.

<sup>3</sup>The Aurora study indicates that one light is temporarily mounted on each side of the cab at "approximately one foot behind the sideview mirror" and "approximately four inches above the top of the sideview mirror." Aurora study at 3 n.3.

The studies also failed to fully support whether motorist behavior was causally based on seeing warning beacons rather than a stopped CMV. One distinction between FMCSR-specified warning triangles and the proposed beacons is that warning triangles are placed at the rear of a stopped CMV (in addition to the front), while the proposed beacons are located only at the front of the cab—raising the possibility that drivers see the rear of a stopped CMV before they see the beacons. While Applicants contend that the beacons are visible from behind the vehicle, the evidence was inconclusive. For example, the studies failed to demonstrate through photos or videos the point at which a beacon or warning triangle was visible or recognized by a motorist, or the point at which a stopped CMV came into view. Changes in driver behavior were observed in 11 out of 12 observations with warning beacons (as opposed to 12 out of 12 for triangles) (Waymo study at 16, Table 3); still, the evidence does not clearly demonstrate whether drivers reacted to the CMV or the warning device. For example, neither study establishes a baseline condition that measured driver reaction to a stopped CMV with no warning device deployed, a concern raised by MVLSSI in its comments.

Applicants' contentions of equal or higher overall responses to warning beacons, moreover, fail to acknowledge circumstances where beacons performed worse than triangles. Aurora's study, for example, concluded that a warning beacon elicited a 2.75% higher percentage of responses than warning triangles overall. Aurora study at 24, Table 3.2.1–1. The same table, however, shows a lower percentage responded overall to warning beacons than to warning triangles in five of eight (62.5%) scenarios in the table, including daytime tests at left curve and straight locations, and nighttime tests at crest, right curve, and straight locations. Id. Although the differences in percentage responding were small, the overall worse performance for beacons in the majority of categories does not support Applicants' conclusion that the proposed beacons performed at a level equal to or better than warning triangles.

Another limitation of the studies was the limited data. The Aurora study tested for 8 minutes with warning beacons, replaced the warning beacons with warning triangles, and then tested the next 8 minutes with warning triangles. Aurora study at 5–6. This leads to 16 minutes of total testing time for both warning devices for each roadway geometry (straight, curve left, curve right, and beyond the crest of a

hill), with the tests repeated in daytime and nighttime lighting conditions. The total test time is just over 2 hours for all devices across all scenarios, with only around 64 minutes of total testing time for the proposed beacons across 8 scenarios. The Waymo study was limited to 48 participants. Waymo study at 7. This limited amount of data does not support an equivalent level of safety, particularly considering the scope of the exemption requested, which is nationwide for all current and future autonomous CMV operators during the exemption period.

Third, the studies do not demonstrate an equivalent level of safety across sufficiently varied circumstances. Many commenters expressed particular concern with the visibility of proposed warning beacons when a CMV is stopped along a curve. For example, TTD stated that the requirement in 49 CFR 392.22(2)(iv) is in place “to account for the simple geometry of curves, hills, and other obstructions that can make cab lights invisible to oncoming traffic.”<sup>4</sup> FMCSA agrees that road curvatures or elevations may affect visibility of a beacon located in a fixed position on the cab of a CMV, and that placement of warning devices at FMCSR-prescribed distances away from the CMV allows for improved visibility in such situations. FMCSA notes that, due to the different placement of the devices, the range of the warning provided by a cab-mounted beacon to an approaching motorist would need to be longer than the range of the warning provided by an appropriately placed warning triangle because the source of the warning (the location at which the warning originates) would be farther from the approaching motorist for a cab-mounted beacon than for a warning triangle placed behind a vehicle. FMCSA also expects the radius of the curve could affect the range of the warning beacon in a similar fashion to how curves affect the range of adaptive driving beams, as described in 49 CFR 571.108 (FMVSS No. 108) under Table XXII—Adaptive Driving Beam System Test Matrix.

The studies also gave insufficient information about the nature of the curves in the studies,<sup>5</sup> making it

<sup>4</sup> See <https://www.regulations.gov/comment/FMCSA-2023-0071-0036>. See also <https://www.regulations.gov/comment/FMCSA-2023-0071-0038> (comment from HAAS Alert noting that “all line-of-sight alerting solutions are inherently limited by their relative visibility,” which can be significantly reduced by weather conditions, road curvature, hills, and other factors).

<sup>5</sup> Appendix C of the Waymo study (Waymo study at 25) includes a map with a star at the curve location that did not appear from the map to be a very sharp curve. In Aurora’s study, it was also

difficult to understand whether the curves were sufficiently representative of the types of curves (e.g., slight vs. truly blind, sharp curves) the beacon-equipped autonomous CMVs would encounter across the United States, and therefore difficult to conclude that there is an equivalent level of safety on curves. Neither study presented photos or videos demonstrating the point of view of an approaching motorist entering or exiting the curve. Moreover, the Waymo study supports that the beacons performed significantly worse than warning triangles at a curve during daytime runs. Specifically, at truck exposure location III (shoulder after curve), 9 out of 12 drivers detected and recognized the truck with the beacon,<sup>6</sup> while 12 out of 12 did so with the warning triangles. This finding is salient to examine, considering that locations with curves would logically present a challenging scenario for fixed beacons versus triangles whose placement can be adjusted based on curves.

Fourth, while Applicants seek an exemption for CMVs operating in a Level 4 autonomous mode (App. at 9), Applicants did not support that vehicles operating in an autonomous mode will stop and engage flashers and beacons similar to the CMVs in the studies. For example, in the Waymo study, it appears that CMVs began in a stopped position, while in the Aurora study, a human driver apparently stopped the vehicle, and in both studies, a human apparently activated both the hazard warning flashers and the beacon devices. Waymo study at 7, 9; Aurora study at 5–6; App. at 11 n.21. Thus, neither study demonstrated that CMVs operating in Level 4 autonomous mode will effectively engage hazard lamps and/or proposed beacons, or the timing with which they would do so, and how that timing compares to timing required under the FMCSRs. And while Applicants contend that they will be able to address electrical failure,

difficult to determine whether the curves were sharp from the maps. For example, when examining the left curve shown in Appendix A (at coordinates 32.3089, -96.593) in Google maps, it appears this location has a posted speed limit of 75 mph. FMCSA notes a sharp curve would have a lower posted speed limit, depending on the curve’s radius.

<sup>6</sup> Table 3 (Waymo study at 16), clearly shows that only 9 out of 12 drivers detected the scenario with the beacon at location III for daytime runs. The driver detection data for nighttime runs at that same location is unclear, however, since Table 17 (Id. at 41) shows non-response for the button press for 2 beacons and 1 triangle, with 2 non-response observations occurring at location III and 1 occurring at location II, making it difficult to determine whether the beacons were missed 16.67% of the time (2 out of 12) or 8.33% of the time (1 out of 12) at the curve.

Applicants did not provide evidence regarding how they will do so.

Applicants’ request to exempt a class of unspecified carriers using unspecified equipment on unspecified vehicles only further undermines the claimed likely equivalent level of safety.

Applicants and some commenters noted potential safety benefits to human drivers. Indeed, in their “safety impact” analysis, Applicants state that the exemption would increase safety “most notably by eliminating the need for a human to enter the roadway to place traditional warning devices” and that while the application applies to CMVs without a human driver, the safety rationale could apply to conventional CMVs. App. at 9. The exemption request, however, is not directed at such circumstances—Applicants request that the exemption be permitted where there is no human driver or where drivers are used only for testing. App. at 4. Indeed, Applicants contend that no human drivers will be affected. App. at 9. While FMCSA agrees that there is promise for improving safety for CMV drivers if they do not need to leave a vehicle to place warning devices, neither Applicants nor the public comments presented data to allow FMCSA to find an equivalent or higher level of safety when using the proposed beacons for carriers operating CMVs with human drivers, and Applicants did not request an exemption to cover such operations.

Fifth, there are other limitations of the application to support the scope sought. For example, the studies do not address visibility of proposed beacons for vehicle orientations with varying trailer heights, such as (for example) a truck tractor pulling a flatbed trailer versus a van type trailer that is taller than the truck tractor. As certain commenters observed, Applicants did not address how proposed beacons might perform in scenarios such as a CMV on its side. Applicants likewise seek a nationwide exemption based only on limited data from a test track in Virginia and a portion of Interstate 45 in Texas between Exits 258 and 249, and without establishing how warning beacons might perform in different geographical or weather conditions across the country.

Sixth, should Applicants (or future applicants) provide sufficient details about proposed alternative warning devices, FMCSA notes that industry-wide exemptions are not the norm and FMCSA grants them only on a very limited basis. Applicants present little data on the effect such a broad exemption would have on overall safety, particularly considering the unknown group of autonomous CMV operators at

issue, the unknown fleet sizes, and potential differences among them in implementation and operations.<sup>7</sup> FMCSA also is concerned that operators will assume that their own similar but varying versions of Cab-Mounted Warning Beacons are a “configuration of similar effectiveness” (App. at 10) and therefore are exempted, without such operators applying for and supporting the safety of an exemption. Thus, at this stage, the record before the Agency does not show that Applicants’ petition for an industry-wide exemption adequately demonstrates the required threshold, of likely to achieve an equivalent level of safety.

## VI. Conclusion

For the reasons given above, the Agency denies the application for an exemption.

FMCSA notes that the Agency may accept a resubmission of an exemption application that has been denied, provided that the applicant can reasonably address the reason for the denial. 49 U.S.C. 31315(b)(3); 49 CFR 381.317.

**Vincent G. White,**  
*Deputy Administrator.*

[FR Doc. 2024-30860 Filed 12-26-24; 8:45 am]

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## DEPARTMENT OF TRANSPORTATION

### Federal Motor Carrier Safety Administration

[Docket No. FMCSA-2024-0029]

### Qualification of Drivers; Exemption Applications; Epilepsy and Seizure Disorders

**AGENCY:** Federal Motor Carrier Safety Administration (FMCSA), Department of Transportation (DOT).

**ACTION:** Notice of applications for exemption; request for comments.

**SUMMARY:** FMCSA announces receipt of applications from 12 individuals for an exemption from the prohibition in the Federal Motor Carrier Safety Regulations (FMCSRs) against persons with a clinical diagnosis of epilepsy or any other condition that is likely to cause a loss of consciousness or any loss of ability to control a commercial motor

<sup>7</sup> Applicants do not provide the names of motor carriers that would be responsible under the exemptions or the estimates—even for their own operations—of the number of drivers and CMVs that would be operated under the exemption. See 49 CFR 381.310(b) and (c). Such information would assist the Agency in assessing the equivalent level of safety for operations with the proposed alternative devices.

vehicle (CMV) to drive in interstate commerce. If granted, the exemptions would enable these individuals who have had one or more seizures and are taking anti-seizure medication to operate CMVs in interstate commerce.

**DATES:** Comments must be received on or before January 27, 2025.

**ADDRESSES:** You may submit comments identified by the Federal Docket Management System Docket No. FMCSA-2024-0029 using any of the following methods:

- **Federal eRulemaking Portal:** Go to [www.regulations.gov/](http://www.regulations.gov/), insert the docket number (FMCSA-2024-0029) in the keyword box and click “Search.” Next, choose the only notice listed, and click on the “Comment” button. Follow the online instructions for submitting comments.

• **Mail:** Dockets Operations; U.S. Department of Transportation, 1200 New Jersey Avenue SE, West Building Ground Floor, Washington, DC 20590-0001.

• **Hand Delivery:** West Building Ground Floor, 1200 New Jersey Avenue SE, Washington, DC 20590-0001 between 9 a.m. and 5 p.m. ET Monday through Friday, except Federal Holidays.

• **Fax:** (202) 493-2251.

To avoid duplication, please use only one of these four methods. See the “Public Participation” portion of the **SUPPLEMENTARY INFORMATION** section for instructions on submitting comments.

**FOR FURTHER INFORMATION CONTACT:** Ms. Christine A. Hydock, Chief, Medical Programs Division, FMCSA, DOT, 1200 New Jersey Avenue SE, Washington, DC 20590-0001, (202) 366-4001, [fmcsamedical@dot.gov](mailto:fmcsamedical@dot.gov). Office hours are 8:30 a.m. to 5 p.m. ET Monday through Friday, except Federal holidays. If you have questions regarding viewing or submitting material to the docket, contact Dockets Operations, (202) 366-9826.

### SUPPLEMENTARY INFORMATION:

#### I. Public Participation

##### A. Submitting Comments

If you submit a comment, please include the docket number for this notice (Docket No. FMCSA-2024-0029), indicate the specific section of this document to which each comment applies, and provide a reason for each suggestion or recommendation. You may submit your comments and material online or by fax, mail, or hand delivery, but please use only one of these means. FMCSA recommends that you include your name and a mailing address, an email address, or a phone

number in the body of your document so that FMCSA can contact you if there are questions regarding your submission.

To submit your comment online, go to <https://www.regulations.gov/docket/FMCSA-2024-0029>. Next, choose the only notice listed, click the “Comment” button, and type your comment into the text box on the following screen. Choose whether you are submitting your comment as an individual or on behalf of a third party and then submit.

If you submit your comments by mail or hand delivery, submit them in an unbound format, no larger than 8½ by 11 inches, suitable for copying and electronic filing. FMCSA will consider all comments and material received during the comment period.

#### B. Viewing Comments

To view comments go to [www.regulations.gov](http://www.regulations.gov). Insert the docket number (FMCSA-2024-0029) in the keyword box and click “Search.” Next, choose the only notice listed, and click “Browse Comments.” If you do not have access to the internet, you may view the docket online by visiting Dockets Operations on the ground floor of the DOT West Building, 1200 New Jersey Avenue SE, Washington, DC 20590-0001, between 9 a.m. and 5 p.m. ET Monday through Friday, except Federal holidays. To be sure someone is there to help you, please call (202) 366-9317 or (202) 366-9826 before visiting Dockets Operations.

#### C. Privacy Act

In accordance with 49 U.S.C. 31315(b)(6), DOT solicits comments from the public on the exemption request. DOT posts these comments, without edit, including any personal information the commenter provides, to [www.regulations.gov](http://www.regulations.gov). As described in the system of records notice DOT/ALL 14 (Federal Docket Management System), which can be reviewed at <https://www.transportation.gov/individuals/privacy/privacy-act-system-records-notices>, the comments are searchable by the name of the submitter.

#### II. Background

Under 49 U.S.C. 31136(e) and 31315(b), FMCSA may grant an exemption from the FMCSRs for no longer than a 5-year period if it finds such exemption would likely achieve a level of safety that is equivalent to, or greater than, the level that would be achieved absent such exemption. The statutes also allow the Agency to renew exemptions at the end of the 5-year period. FMCSA grants medical exemptions from the FMCSRs for a 2-